



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,446	09/19/2006	Yoshitaka Kinoshita	071971-0741	9940

53080 7590 08/19/2010  
MCDERMOTT WILL & EMERY LLP  
600 13TH STREET, NW  
WASHINGTON, DC 20005-3096

EXAMINER
----------

WEBB, VERNON P

ART UNIT	PAPER NUMBER
----------	--------------

2811

MAIL DATE	DELIVERY MODE
-----------	---------------

08/19/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,446	<b>Applicant(s)</b> KINOSHITA ET AL.	
	<b>Examiner</b> VERNON P. WEBB	<b>Art Unit</b> 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 15-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***DETAILED ACTION***

***Status of Application***

1. This office action is in response to the filing of the amendment on 06/02/2010, Claims 15-18 and 20 are pending in this application.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1-9, 11, 12, 14, 19 and 21 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

3. The indicated allowability of claims 15-18 and 20 is withdrawn in view of the newly discovered reference(s) to Tsujimura et al. (U.S. Pub. Application 2003/0168653 A1) and in further in view of D'Evelyn et al. (U.S. Pub. Application 2005/0087753 A1) and Sakano et al. (U.S. Pub. Application 2003/0080341 A1). Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 2811

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujimura et al. (U.S. Pub. Application 2003/0168653 A1) and in further in view of D'Evelyn et al. (U.S. Pub. Application 2005/0087753 A1).
4. Regarding claim 15, Tsujimura et al. discloses a light-emitting diode comprising:
- a substrate (item 11) made of group III-V nitride semiconductor (pg. 4, paragraph [0071]; Figs. 1-2)
  - a first n-type semiconductor layer (item 13) formed over a main surface of the substrate (item 11) (pg. 4, paragraph [0071]; Figs. 1-2)
  - a light-emitting layer (item 151) formed over the first n-type semiconductor layer (13) (pg. 3, paragraph [0048]; Figs. 1-9) .
  - a second n-type semiconductor layer (item 12) formed between the substrate (item 11) and the first n-type semiconductor layer (item 13) (pg. 5, paragraph [0078]; Figs. 1-2);
  - a third n-type semiconductor layer (item 14) formed between the first n-type semiconductor layer (item 13) and the light-emitting layer (item 151) (pg. 4, paragraph [0071]; Figs. 1-2).
  - a fourth n-type semiconductor layer (item 152) formed between the first n-type semiconductor layer (item 13) and the light-emitting layer (item 151) (pg. 5, paragraph [0078]; Figs. 1-2).

Art Unit: 2811

5. Tsujimura et al. does not disclose a light-emitting diode comprising: first n-type semiconductor layer containing indium.

6. However D'Evelyn et al. discloses a light-emitting diode comprising a first n-type semiconductor layer (item 172) containing indium (pg. 10, paragraph [0094]; pg. 12, paragraph [0113], lines 5-9; Figs. 7 and 11).

7. It would have been obvious for one of ordinary skill in the art to form a light-emitting diode as disclosed by Tsujimura et al. and a first n-type semiconductor layer containing indium as disclosed by D'Evelyn et al. since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

8. Regarding claim 16, Tsujimura et al. discloses a diode as described in reference to claim 15, wherein the fourth n-type semiconductor layer is made of a compound whose general formula is represented by  $\text{Al}_e\text{Ga}_{1-e}\text{N}$  ( $0 \leq e < 1$ ) (pg. 5, paragraph [0078]; Figs. 1-2).

9. Regarding claim 17, Tsujimura et al. discloses a diode as described in reference to claim 15, wherein the fourth n-type semiconductor layer (item 152) is a cladding layer (pg. 5, paragraph [0078]; Figs. 1-2).

10. Regarding claim 18, Tsujimura et al. discloses a diode as described in reference to claim 15, wherein the cladding layer has a thickness of 5 to 200 nm inclusive (pg. 5, paragraph [0078]; Figs. 1-2).

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujimura et al. (U.S. Pub. Application 2003/0168653 A1) and in further in view of

Art Unit: 2811

D'Evelyn et al. (U.S. Pub. Application 2005/0087753 A1) and Sakano et al. (U.S. Pub. Application 2003/0080341 A1).

12. Regarding claim 20, Tsujimura et al. discloses an illuminating device comprising multiple light-emitting diodes, wherein the diodes including:

- a substrate (item 11) made of group III-V nitride semiconductor (pg. 4, paragraph [0071]; Figs. 1-2)
- a first n-type semiconductor layer (item 13) formed over a main surface of the substrate (item 11) (pg. 4, paragraph [0071]; Figs. 1-2)
- a light-emitting layer (item 151) formed over the first n-type semiconductor layer (13) (pg. 3, paragraph [0048]; Figs. 1-9) .

13. Tsujimura et al. does not disclose an illuminating device comprising multiple light-emitting diodes, wherein the diodes including: first n-type semiconductor layer containing indium.

14. However D'Evelyn et al. discloses a light-emitting diode comprising a first n-type semiconductor layer (item 172) containing indium (pg. 10, paragraph [0094]; pg. 12, paragraph [0113], lines 5-9; Figs. 7 and 11).

15. It would have been obvious for one of ordinary skill in the art to form a light-emitting diode as disclosed by Tsujimura et al. and a first n-type semiconductor layer containing indium as disclosed by D'Evelyn et al. since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Art Unit: 2811

16. Additionally Sakano et al. discloses an illuminating device comprising multiple light-emitting diodes (pg. 12, paragraph [0172]; Fig. 5).

17. It would have been obvious for one of ordinary skill in the art to form a light-emitting diode as disclosed by Tsujimura et al. as modified by D'Evelyn et al. to be capable of being an illuminating device comprising multiple light-emitting diodes as disclosed by Sakano et al. as its well known in the art to form duplicates or variations of light emitting diodes are widely used as the light source for illuminating switch, full-color display, back light for liquid crystal display and the like (pg. 1, paragraph [0006]).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERNON P. WEBB whose telephone number is (571)270-3332. The examiner can normally be reached on Monday through Friday, 7:30 am to 5 pm, Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne A. Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2811

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V. Parris Webb/  
Examiner, Art Unit 2811

/Hung Vu/  
Primary Examiner, Art Unit 2811